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CROSSINGS

NEWSLETTER OF THE WOOD IN TRANSPORTATION PROGRAM



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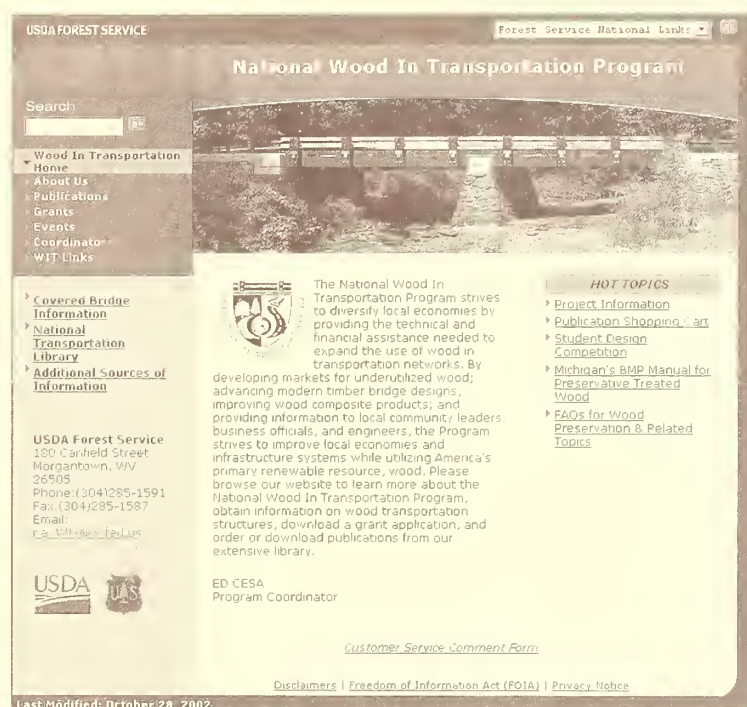
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Wood In Transportation Website Brochure

The National Wood In Transportation Website



www.fs.fed.us/na/wit/

The National Wood In Transportation Program Website has been revamped! In addition to having a new appearance, the website now has two new webpages that make it easier for visitors to find project information and locate and order publications from the National Wood In Transportation (WIT) Program's library.

As the number of publications in the Program's library increased over the years, a need arose to provide the public with the means to locate those publications of interest. To address this issue, the National Wood

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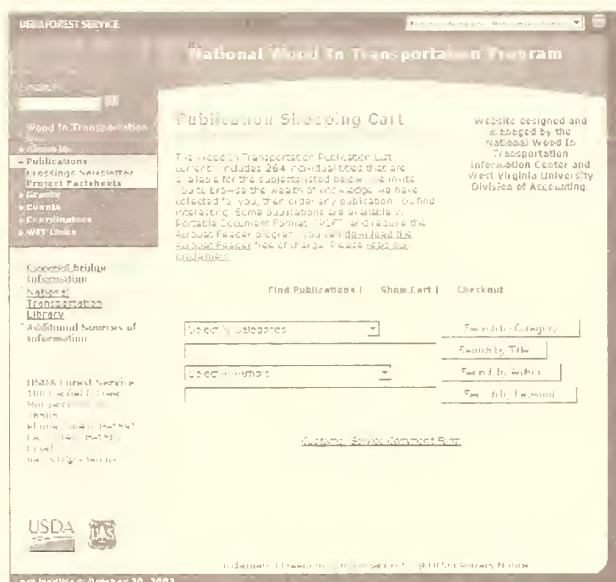
Visit our website at www.fs.fed.us/na/wit



The National Wood In Transportation Program Website . . . continued from page 1

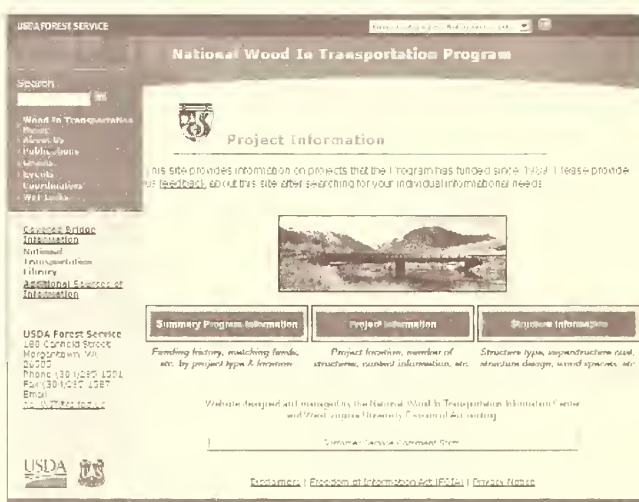
In Transportation Information Center and the West Virginia University-Division of Accounting collaborated in the development of a publication shopping cart webpage for the WIT Website. Now visitors to the website can search through the Program's extensive library using the criteria: *category, title, author, and keyword*. Ordering publications is just a matter of a few clicks of the mouse and completing a simple checkout process. Many of the publications are also available for download in Adobe Portable Document Format (.pdf) for immediate viewing. The webpage can be accessed through the WIT Homepage by clicking on the "Publications" link in the left hand column. It can also be accessed directly at: <http://spfinc.fs.fed.us/wit/WITpubs/PubSearch.cfm>.

Publication Shopping Cart



Another new feature of the WIT Website is an interactive webpage that provides easy and remote access to information on projects funded by the National Wood In Transportation Program. Visitors can easily locate specific information on demonstration projects dating back to 1989. Some of the queries that can be used to locate project information include: *location, year, project type, cost, species used, and structure type*. Much of the retrieved information is available for download in Adobe Portable Document Format (.pdf). The webpage can be accessed by clicking on the link "Project Information" on the WIT Homepage or at the following web address: <http://spfinc.fs.fed.us/wit/Index.cfm>.

Project Information



Frequently Asked Questions for Wood Preservation and Related Topics

Preservative treatments have long been used to improve wood's resistance to attack from fungi, insects, and marine borers, but many questions still remain about their use. Answers regarding preservative treated wood use, types, properties, and alternatives are located on the USDA Forest Service Forest Products Laboratory's webpage *Frequently Asked Questions for Wood Preservation and Related Topics*. This webpage can be accessed through a link on the WIT Homepage (www.fs.fed.us/na/wit) under "HOT TOPICS" or at www.fpl.fs.fed.us/pres_fire/Preservation_FAQ.htm.



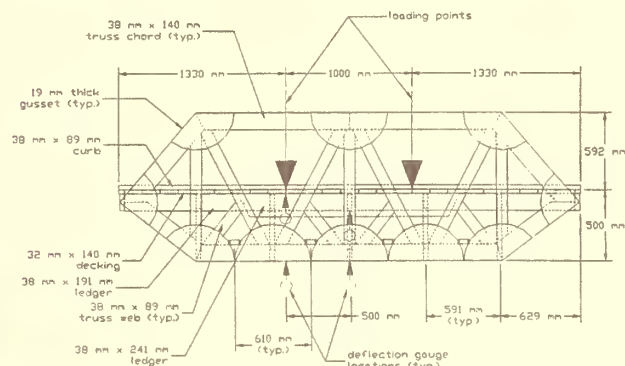
Results of the Tenth National Timber Bridge Design Competition

Sixteen teams of students from universities across the United States matched wits in the recently completed National Timber Bridge Design Competition. Open to student chapters of American Society of Engineers (ASCE) and Forest Products Society (FPS), the competition was made possible by a grant from the USDA Forest Service through its Wood In Transportation Program. The Southern Pine Council of the Southern Forest Products Association, Unit Structures LLC, and Weyerhaeuser Company provided additional financial support. Southwest Mississippi Resource Conservation and Development (RC&D), Inc., coordinates the annual competition.

The competition's objectives are to promote interest in the use of wood as a competitive bridge construction material, to generate innovative and cost-effective timber bridge design techniques, and to develop an appreciation of the engineering capabilities of wood among future transportation and forest products engineers.

Each team designed, constructed and tested their bridges on their home campus, then submitted documentation of their activities and results to a panel of judges for review. The competition is conducted online via the Internet. Each team is required to post design drawings, test results, and project highlights on the Web at <http://www.msacd.org/bridge.htm>. To view details of competition results and to access each entry in its entirety, click on "2002 Competition Results."

Winner of the **Best Overall Design Award** sponsored by Weyerhaeuser Company was **Virginia Tech FPS Chapter**. Their design (below) used two two-dimensional, moment-resisting trusses positioned at outside curbs with ledger beams supporting 5/4-inch thick transverse deck boards. A 2-inch by 8-inch stringer added additional support down the bridge center. All wood members were CCA-treated southern pine, with trusses joined by resorcinol phenolformaldehyde adhesive. This entry also placed **second in Best Support Structure**. The team received cash awards totaling \$2,250 for their efforts.



The **second** place money winner was **University of Missouri-Rolla ASCE Chapter** with awards totaling \$2,000. Their entry placed **first in Best Support Structure** and **second in Best Overall Design**. Their design featured two above-deck trusses at each curb supporting a deck designed to act as multi-celled box beams at the positive and negative moment regions and as T-beams near the areas of contra-flexure. The deck was built in two sections, a concept allowing one traffic lane to be replaced while the other remains open.

The **Rose-Hulman Institute of Technology ASCE Chapter** was another big winner, receiving \$1,500 for **first place in Most Aesthetic Design**, **second in Best Deck** and **third in Best Support Structure**. Their twin-arch suspension bridge used two-inch tongue and grooved deck placed diagonally over a system of 2-inch by 8-inch girders and 2-inch by 4-inch transverse joists. Unique tension connections between chords and arches took advantage of the natural tensile strength of wood.

The **Best Deck first** place award went to **University of Alabama at Birmingham ASCE Chapter** for their CCA-treated southern pine longitudinal deck of 2-inch by 4-inch on 2-inch by 6-inch transverse beams, all supported by two outside trusses. The entry also received **third place in Most Practical Design**. A second team from **UAB** placed **second in Most Practical Design**.

The **Most Innovative Design** was submitted by the **U.S. Military Academy ASCE Chapter**, fully illustrating the viability of timber in an innovative design and demonstrating the compression strength and sleek design potential of timber. Two arches supported a transverse beam-longitudinal deck design in suspension and compression. Their entry also received **third place in the Most Aesthetic** category.



The final **first** place award went to **Clarkson University** for **Most Practical Design**. Their variation of through truss design allowed the use of smaller members that can be fabricated from lumber species and grades that have a relatively low modulus of elasticity.

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Results of the Design Competition . . .

continued from page 3

Other teams capturing top-three awards were **Cal State-Fresno ASCE** (*second in Most Aesthetic and third in Most Innovative*), **University of New Hampshire ASCE** (*second in Most Innovative*), **San Francisco State University ASCE** (*third in Best Deck*), and **Mississippi State University ASCE** (*third in Best Overall Design*).

Other teams competing were State University of New York – College of Environmental Science and Forestry FPS Chapter and ASCE Chapters from Clemson University, Washington University in St. Louis, University of Louisiana at Lafayette, and Oklahoma State University. For a complete review of Competition Results and each individual entry, go to www.msacd.org/bridge.htm. Results of 1998 through 2001 competitions are also posted online.

The test bridges were 11.8 feet (3.6 m) long and 4.6 feet (1.4 m) wide and were loaded with a test weight of approximately 4,500 pounds. Average weight of the bridge models was 683 pounds. At full loading, maximum bridge deflection ranged from 1.39 mm to 8.67 mm. Maximum allowable deflection was 9 mm. Percent non-wood materials in the bridges averaged 5.3 percent; maximum percent non-wood materials allowed was 25 percent, by weight. A total of 111 students spent 3,360 hours on the competition, competing for \$10,000 in prizes. Judges were Bobby Briggs, Weyerhaeuser Company; Scott Groenier, USDA Forest Service; and Chad Fowler, Unit Structures LLC.

— **Bennie F. Hutchins**
RC&D Coordinator
Southwest Mississippi RC&D, Inc.

11th National Timber Bridge Design Competition Announced

The 11th National Timber Bridge Design Competition is underway. The **deadline** for online entry (www.msacd.org) and receipt of mailed material is **March 28, 2003**. Visit www.msacd.org/bridge.htm or link from the National Wood In Transportation Program Website at www.fs.fed.us/na/wit for the rules, questions and answers, and online entry. For additional information contact the competition coordinators with Southwest Mississippi RC&D, Inc., at southwest@msacd.org.

Conference Announcement

Covered Bridge Preservation National Best Practices Conference University of Vermont, Burlington, Vermont June 5-7, 2003

Sponsored by

National Park Service, Historic Preservation Training Center;
NPS Historic American Engineering Record;
National Covered Bridge Research Program; Federal Highway Administration; Historic Windsor, The Preservation Education Institute; and the Historic Preservation Program, University of Vermont

Papers are sought on the following topics:

- Case studies of repair and maintenance projects
- Disaster planning and mitigation
- Documenting covered bridges
- Creating friends groups for bridges
- Engineering analysis of covered bridges
- Lost bridges and their heritage
- Species specificity
- Maintenance programming
- Application of the Secretary of the Interior's Standards for Rehabilitation
- The crafts of timber framing and carpentry in covered bridges
- Fire detection and suppression
- Fundraising strategies
- Engineering or craft insights into the performance of historic trusses
- The case for building new covered bridges
- Interpreting and marketing covered bridges in the spirit of cultural tourism
- HABS/HAER, National Register and State survey programs
- Repair techniques
- Covered bridge builders

Preferred format is via electronic submission in Microsoft Word to: coveredbridges@uvm.edu **no later than the close of business December 9, 2002**. Submissions may be mailed to: The Preservation Education Institute, P. O. Box 1777, Windsor, VT 05089-0021 no later than **December 9, 2002**. Abstracts should be no more than 500 words. Presentations at the conference will be approximately one-half hour in length. If selected, presenters will be notified no later than January 17, 2003. Final papers must be submitted no later than close-of-business on April 7, 2003.

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Current Status of the National Wood In Transportation Program

The federal fiscal year 2002 ended on September 30, 2002. With a program budget last year of \$1.9 million, a sizable increase from fiscal year 2001, we were looking forward to a great year. We conducted our annual demonstration grants competition last winter/early spring and identified a number of projects for funding. Unfortunately, most of those projects were never funded because of the pull-back of funds to help offset the unusually high fire suppression costs that the USDA Forest Service incurred during the last two quarters of the fiscal year.

At the time of printing this issue of *Crossings*, we do not know what our final budget in fiscal year 2003 will be. Therefore, we have not announced the annual demonstration grants competition. Once we know what our budget is, we will make a decision as to whether or not we can offer a demonstration grant program this year. For those of you interested in submitting a proposal to us, the application form will be similar to last year's application. The application form can be viewed and downloaded from the Wood In Transportation website or go directly to the demonstration grants webpage at <http://www.fs.fed.us/na/wit/WITPages/grants.html>

Conference Announcement . . . continued from page 4

Presenters will be asked to sign a release authorizing publication of their articles either in print, electronically, or in alternate formats for people with disabilities. Papers will be published in the conference proceedings. Some articles may be printed in other publications and/or may be published on the Internet. Presenters will receive complimentary tuition to the conference, conference events and a modest travel stipend.

For more information, access the conference website at www.uvm.edu/coveredbridges/.

Contact Judy L. Hayward, Executive Director of the Preservation Education Institute, at coveredbridges@uvm.edu or (802) 674-6752 for any questions you might have.

Welcome Jeff Bejune



We have a new member of the Wood In Transportation Program staff. Jeff Bejune came onboard in August 2002. He will be assisting with the Wood In Transportation Program's normal activities for the next 9 months. Since being with the Program, Jeff has been responsible for helping develop several publications and

updating the WIT Website. He is currently finalizing a major publication pertaining to the design and use of portable timber bridges.

Jeff has worked for Home Depot and Structural Systems Inc. He was also an aircraft mechanic in the U.S. Air Force from 1988 through 1996. Jeff's formal degrees include: Master of Science – Wood Science and Forest Products, Virginia Tech; B.S. – Building Materials and Wood Technology, University of Massachusetts; B.A. – Management Studies, University of Maryland; and A.A. – Japanese Studies, University of Maryland.

Ironically, Jeff had a connection to the Wood In Transportation Program before he was hired. After completing his Masters, he took some time off to hike the Appalachian Trail. During his journey he crossed the Poehuck Quaquire Bridge in New Jersey. After admiring the structure for a bit, he took a picture of it. Little did he know that shortly after finishing his hike he would be employed by a program that played an important role in the bridge's construction.



NEW PUBLICATIONS



Best Management Practices for the Use of Preservative-Treated Wood in Aquatic Environments in Michigan

This new publication has been developed to meet the specific issues and concerns of using preservative-treated wood products in Michigan. This Best Management Practices (BMPs) manual is intended to: 1) serve as a reference to assist designers and end users of preservative-treated timber products with selection of the proper preservative-treated timber, and, 2) help determine the best management practices for the use of preservative-treated wood in aquatic environments.

The manual was adapted from *Best Management Practices for the Use of Treated Wood in Aquatic Environments* with permission from the Western Wood Preservers Institute and the Canadian Institute of Treated Wood. The Best Management Practices outlined in the manual, incorporate guidelines that were developed by the American Wood Preservers Institute (AWPI) and the American Wood-Preservers' Association (AWPA), with certain adaptations for use in aquatic environments in Michigan. The Michigan Department of Natural Resources, Michigan Department of Environmental Quality, Huron Pines RC&D, and Northwest Design Group, Inc. collaborated in the development of the publication. The project was funded in part by the USDA Forest Service Wood In Transportation Program.

To obtain a copy, please contact the National Wood In Transportation Information Center at 304-285-1591 and request publication number WIT-05-0029 or visit the Wood In Transportation website at www.fs.fed.us/na/wit to download the publication.

Chestnut Oak: Qualifications & Outcomes for Use in a Glulam Timber Bridge

A recent project, that was officially closed in federal fiscal year 2002, that analyzed the potential use of chestnut oak lumber for glulam stock for bridges was conducted with the financial assistance of the Wood In Transportation Program. The project provided insight on whether or not chestnut oak lumber could be another viable hardwood species for modern day timber bridges. The study was completed in cooperation with the Pennsylvania State University, the Pennsylvania Rural Development Council, the Pennsylvania Department of Corrections, several businesses, and the USDA Forest Service.

To obtain a copy of the report, please contact the National Wood In Transportation Information Center at 304-285-1591 and request publication number WIT-07-0021 or visit the Wood In Transportation website at www.fs.fed.us/na/wit to download a copy.



Article contributions, questions, or comments may be sent to Ed Cesa, Program Coordinator, National Wood In Transportation Information Center or Mr. Chris Grant, Program Assistant, USDA Forest Service, 180 Canfield Street, Morgantown, WV 26505; Phone: (304) 285-1591; FAX: 304-285-1587, or e-mail: na_wit@fs.fed.us. A change of address may be submitted to cgrant@fs.fed.us. For publication requests, e-mail jnorth@fs.fed.us.

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